Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pd: 3 **Week7** Distance Learning

**NEWTON’S LAWS OF MOTION**

***Use the resources on Mr. Hanna’s website to complete the following assignment.***

**VOCABULARY:**

1. NEWTON’S FIRST LAW –
2. INERTIA –
3. MOMENTUM –
4. NEWTON’S SECOND LAW –
5. WEIGHT –
6. NEWTON’S THIRD LAW –

**SHORT ANSWER:**

1. What is the ONLY way to *CHANGE* an object’s motion?
2. If you are riding in a car when the driver slams on the breaks, why does your body feel like it’s being thrown forward toward the front of the car (*this is why you must wear your seatbelt!!!*)?
3. If you try to push a light object (such as an empty box) and a heavy object (such as a refrigerator) across the floor, why is it harder to move the heavy object?
4. A medicine ball (heavy) and a basketball (light) are dropped at the same time from the same height. Most people would predict that the medicine ball will drop faster and hit the ground first, but that isn’t the case. The two balls will fall at the same rate and hit the ground at the same time. Use the concept of inertia to explain why (*if you’re able, watch the video in the PowerPoint or posted on my website*).
5. You could say that momentum is a “type” of inertia…in what way is this true?
6. When you apply an unbalanced force to an object, in which direction will the object accelerate?
7. What are the metric units for “force”?
8. How do we calculate an object’s weight?
9. Explain how “weight” is an example of Newton’s second law of motion.
10. Explain how the Normal Force is an example of Newton’s third law of motion.

**PRACTICE: (*remember to show the 3 steps for math problems*)**

1. A baseball player throws a 0.4 kg baseball at a speed of 20 m/s. What is the momentum of the ball?
2. What net force must you apply to accelerate a toy car with a mass of 0.5 kg at a rate of 2 m/s2?
3. What is the weight of a 100 kg box?
4. If you push a box along the floor at a constant speed, then its acceleration is 0 m/s (*there is no change in motion*). If the box has a mass of 20 kg, what is the net force that you are applying to the box? (***You must show me the math to back up your answer!***)